Attorney Docket No. 10559-096001
Appl. No. 09/471,964
Amdt. dated August 4, 2003
Reply to office action dated June 2, 2003

Amendment to the Claims:

This listing of claims replaces all prior versions, and

listings, of claims in the application:

1. (Currently amended) A method for real-time measurement

of the performance of communications on a large area network

between a selected server and a plurality of users, based upon

actual user experience, including:

(a) accessing a server log having records indicative of

routings of actual user access to the selected server;

(b) aggregating records from the server log into a

plurality of aggregate slots, each slot having at least one time

bin which represents an interval of time, based on an

aggregation method;

(c) performing at least one statistical analysis separately

on each time bin of each aggregate slot; and

(d) outputting the results of such statistical analysis as

an indication of actual access to server usage by users.

2. (Original) The method of claim 1, further including

filtering out selected records from the server log before the

step of aggregating.

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3. (Original) The method of claim 1, further including generating an event notification if a selected statistical analysis value is abnormal.

4. (Original) The method of claim 1, further including selecting the aggregation method from a set of aggregation methods.

5. (Original) The method of claim 1, wherein the aggregation method includes aggregation by log-file record column data value for each record from the server log.

6. (canceled)

7. (Currently amended) The method of claim [[6]] 34, wherein determining geographical or source information for each record includes:

(g) defining a database comprising large area network address blocks having geographical or source information;

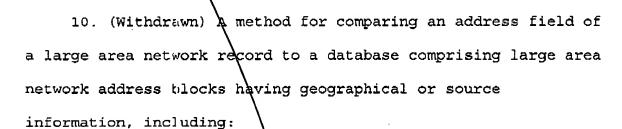(h) comparing an address field in each record to the address blocks in the database; and

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(i) associating with each record the geographical or source information from an address block matching the address field of the record

8.(Original) The method of claim 7, wherein comparing an address field in each record to the address blocks in the database includes:

(j) defining an array of binary trees for the address blocks in the database, each address block within a binary tree within an array element being masked by a corresponding unique subnet mask value;

(k) masking each address field in each record by a unique subnet value corresponding to a selected array element;

(l) comparing each masked address field to an address field of the address blocks within the binary tree of the selected array element;

(m) outputting selected fields of any matching address block; and

(n) otherwise, continuing the step of comparing with a next selected array element until a match is found or all array elements have been compared.

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9.   (Original.) The method of claim 1, further including:

(o) determining exit routing paths from each selected

server based on the records from the server log;

(p) determining a best performing exit route based on the

statistical analysis of records from the server log;

(q) biasing incoming and outgoing communications with

respect to each server to use the determined best performing

exit route.

10. (Withdrawn) A method for comparing an address field of

a large area network record to a database comprising large area

network address blocks having geographical or source

information, including:

(r)   defining an array of binary trees for the address

blocks in the database, each address block within a binary tree

within an array element being masked by a corresponding unique

subnet mask value;

(s)   masking the address field of a large area network

record by a unique subnet value corresponding to a selected

array element;

(t)   comparing each masked address field to an address

field of the address blocks within the binary tree of the

selected array element;

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(u) indicating a match; and

(v) otherwise, continuing the step of comparing with a next selected array element until a match is found or all array elements have been compared.

11. (Currently amended) A system for real-time measurement of the performance of communications on a large area network between a selected server and a plurality of users, based upon actual user experience, including:

(w) a server log having records with data indicative of routings of actual user access to the selected server;

(x) means for accessing and aggregating records from the server log into a plurality of aggregate slots, each having at least one time bin which represents an interval of time, based on an aggregation method;

(y) means for performing at least one statistical analysis of each time bin of each aggregate slot; and

(z) means for outputting the results of such statistical analysis as an indication of access to actual server usage by users.

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12. (Previously presented) The system of claim 11, further including means for filtering out selected records from the server log before the step of aggregating.

13. (Original) The system of claim 11, further including means for generating an event notification if a selected statistical analysis value is abnormal.

14. (Original) The system of claim 11, further including means for selecting the aggregation method from a set of aggregation methods.

15. (Original) The system of claim 11, wherein the aggregation method includes aggregation by log-file record column data value for each record from the server log.

16. (Original) The system of claim 11, further comprising:

(aa) means for determining geographical or source information for each record; and

(bb) means for selecting the aggregation method to aggregate records based on such geographical or source information.

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17. (Original) The system of claim 16, wherein the means for determining geographical or source information for each record includes:

(cc) a database comprising large area network address blocks having geographical or source information;

(dd) a comparison function for comparing an address field in each record to the address blocks in the database; and

(ee) an associating function for associating with each record the geographical or source information from an address block matching the address field of the record.

18. (Original) The system of claim 17, wherein the comparison function includes:

(ff) an array of binary trees from the address blocks in the database, each address block within a binary tree within an array element being masked by a corresponding unique subnet mask value;

(gg) means for masking each address field in each record by a unique subnet value corresponding to a selected array element;

(hh) means for comparing each masked address field to an address field of the address block within the binary tree of the selected array element;

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(ii) means for outputting selected fields of any matching address block ; and

(jj) means for otherwise continuing the step of comparing with a next selected array element until match is found or all array elements have been compared.

19. (Original) The system of claim 11, further including:

(kk) means for determining exit routing paths for each selected server based on the records from the server log;

(11) means for determining a best performing exit route based on the statistical analysis of records from the server log;

(mm) means for biasing incoming and outgoing communications with respect to each server to use the determined best performing exit route.

20. (Withdrawn) A system for comparing an address field of a large area network record to a database comprising large area network address blocks having geographical or source information, including:

(nn) an array of binary trees for the address blocks in the database, each address block within a binary tree within an

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array element being masked by a corresponding unique subnet mask
value;

(oo) means for masking the address field of a large area
network record by a unique subnet value corresponding to a
selected array element;

(pp) means for comparing each masked address field to an
address field of the address blocks within the binary tree of
the selected array element;

(qq) means for indicating a match; and

(rr) means for otherwise continuing the step of comparing
with a next selected array element until a match is found or all
array elements have been compared.

21. (Currently amended) A computer program, stored on a
computer-readable medium, for real-time measurement of the
performance of communications on a large area network between a
selected server and a plurality of users, based upon actual user
experience, the computer program comprising instructions for
causing a coputer system to:

(ss) access a server log having records of routing of
actual user access to the selected server;

(tt) aggregate records from the server log into a plurality

of aggregate slots, each having at least one time bin, based on

an aggregation method;

(uu) perform at least one statistical analysis of each time

bin, representing a time interval, of each aggregate slot; and

(vv) output the results of such statistical analysis as an

indication of actual server usage by users.

22. (Original) The computer program of claim 21, further

including instructions for causing the computer system to filter

out selected records from the server log before the step of

aggregating.

23. (Original) The computer program of claim 21, further

including instructions for causing the computer system to

generate an event notification if a selected statistical

analysis value is abnormal.

24. (Original) The computer program of claim 21, further

including instructions for causing the computer system to select

the aggregation method from a set of aggregation methods.

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25. (Original) The computer program of claim 21, wherein the aggregation method includes aggregation by log-file record column data value for each record from the server log.

26. (Original) The computer program of claim 21, further including instructions for causing the computer system to:

(ww) determine geographical or source information for each record; and

(xx) select the aggregation method to aggregate records based on such geographical or source information.

27. (Original) The computer program of claim 26, wherein the instructions for causing the computer systems to determine geographical or source information for each record further include instructions for causing the computer system to:

(yy) define a database comprising large area network address blocks having geographical or source information;

(zz) compare an address field in each record to the address blocks in the database; and

(aaa) associate with each record the geographical or source information from an address block matching the address field of the record.

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28. (Original) The computer program of claim 27, wherein the instructions for causing the computer system to compare an address field in each record to the address blocks in the database include instructions for causing the computer system to:

(bbb) define an array of binary trees for the address blocks in the database, each address block within a binary tree within an array element being masked by a corresponding unique subnet mask value;

(ccc) make each address field in each record by a unique subnet value corresponding to a selected array element;

(ddd) compare each masked address field to an address field of the address blocks within the binary tree of the selected array element;

(eee) output selected fields of any matching address block; and

(fff) otherwise, continue the step of comparing with a next selected array element until a match is found or all array elements have been compared.

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29. (Original) The computer program of claim 21, further including instructions for causing the computer system to:

(ggg) determine exit routing paths from each selected server based on the records from the server log;

(hhh) determine a best performing exit route based on the statistical analysis of records from the server log;

(iii) bias incoming and outgoing communications with respect to each server to use the determined best performing exit route.

30. (Withdrawn) A computer program, stored on a computer-readable medium, for comparing an address field of a large area network record to a database comprising large area network address blocks having geographical or source information, the computer program comprising instructions for causing a computer system to:

(jjj)   define an array of binary trees for the address blocks in the database, each address block within a binary tree within an array element being masked by a corresponding unique subnet mask value;

(kkk)   mask the address field of a large area network record by a unique subnet value corresponding to a selected array element;

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(lll)   compare each masked address field to an address

field of the address blocks within the binary tree of the

selected array element;

(mmm)   indicate a match; and

(nnn)   otherwise, continue the step of comparing with a

next selected array element until a match is found or all array

elements have been compared.

Kindly add the following new claims.

31. (New) A method as in claim 1, wherein said statistical

analysis determines time for specified user access relative to a

specified interval, and sorts said user access according to a

number of times that the application exceeds said interval.

32. (New) A method as in claim 1, wherein said server log

includes a time stamp indicating when a record was formed, a

client IP address, a time taken to complete transmission, and a

size of the transmission.

33. (New) A method as in claim 32, wherein said server log

is formed by adding new data entry to the server log, and said

server log is closed to further data entry prior to said

performing.

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34. (New) A method as in claim 32, wherein said aggregating comprises determining a geographic location from the IP address, and aggregating IP addresses having a specified relationship with a specified geographical location.

35. (New) A method as in claim 32, further comprising aggregating said time bins into chronological order and determining trends among said time bins.

36. (New) A method as in claim 32, further comprising using said information to compute byte density, transfer rate, and error fraction.

37. (New) A method as in claim 32, wherein said statistical analysis is an assessment of performance related measurement against a geographical location of a client.

38. (New) A method as in claim 32, wherein said statistical analysis is an assessment of a route traversed during use of the network application by an end user.

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39.   (New) A method as in claim 1, further comprising
determining a new path based on said results of said statistical
analysis.

40.   (New) A system as in claim 11, wherein said server log
includes a time stamp indicating when a record was formed, a
client IP address, a time taken to complete transmission, and a
size of the transmission.

41.   (New) A system as in claim 40, wherein said server log
is formed by adding new data as entries to the server log, and
said server log is closed to further data entry prior to said
performing.

42.   (New) A system as in claim 40, wherein said accessing
means converts the IP address into a geographic location, and
aggregates IP addresses having a specified relationship with a
specified geographical location.

43.   (New) A system as in claim 40, wherein said
statistical analysis is an assessment of performance related
measurement against a geographical location of a client.

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44. (New) A system as in claim 40, wherein said statistical analysis is an assessment of a route traversed during use of the network application by an end user.

45. (New) A system as in claim 11, further comprising a communication routing part, determining a new path based on said results of said statistical analysis.

46. (New) The computer program as in claim 21, wherein said instructions to access the server log comprises instructions to access a server log that includes time information about records, client IP address, time taken to complete a transmission, and a size of the transmission.

47. (New) The computer program as in claim 46, wherein said instructions to aggregate include instructions to convert the IP address into information indicative of a geographical location, and to aggregate the information according to the geographical location.

48. (New) The computer program as in claim 47, wherein said instructions to perform a statistical analysis perform a

statistical analysis of performance versus geographical location

of the client.

49.   (New) The computer program as in claim 47, wherein

said instructions to perform a statistical analysis perform the

a statistical analysis assessing a route traversed during a

network application.

50.   (New) The computer program as in claim 21 further

comprising additional instructions to determine a new path based

on results of said statistical analysis.